SCIENCE & EDUCATION
Impact
Benefits from USDA/Land-Grant Partnership

Boosting the Bottom Line

Farm profits get squeezed a little tighter every year.

So many things take a bite out of the money farmers make from their labors that it's hard to find anything left for them. With often only a tiny profit margin, the advantages the USDA and Land-Grant universities provide can be critical to agricultural producers' ability to remain in business.

Payoff

- **Beef bucks.** It's not easy to make money raising beef cattle. Land-Grant universities help keep farmers and ranchers profitable in many ways. Special marketing initiatives have helped earn farmers an extra income: $350 to $525 each for selected heifers in **Missouri;** $1,780 per farmer in West Virginia; $1,250 per producer per year through a **South Carolina State** effort; and $300,000 for 20,000 cattle in an **Oklahoma State** program. **Nevada** scientists developed a vaccine that protects pregnant heifers from abortion, saving the state's ranchers $950,000 per year, and the university's Wolf Pack Meats program provides them new beef products for the breakfast market. **Nebraska** veterinarians came up with a system to reduce diarrhea in calves – a single 900-head ranch calculated savings of $40,000. A new pasture legume in Missouri adds 12 percent to the weight gains of steers. **New Mexico State** researchers bred the Line 1 Brangus, a breed well-adapted to desert conditions, for Southwestern ranchers. **Auburn** scientists created a horn-fly vaccine with the potential to save farmers millions of dollars and eliminate the use of insecticides for controlling horn flies. **Georgia** scientists found a way to clone cattle from the cells of a beef carcass, enabling farmers to select cattle with the tenderest cuts to improve their herds. The **USDA, Texas A&M,** the National Human Genome Research Institute and the Baylor College of Medicine have begun sequencing the bovine genome, a $50 million project with an expected multibillion-dollar return on investment.

- **Whey to go.** Each year, U.S. dairies produce 74 million pounds of whey byproducts, half of which aren't used. **Vermont** researchers developed whey protein-based wood varnishes. Natural and safe for homes, kids and pets, these products can become a new market for dairies. **Wisconsin** Extension teams helped small dairies add an average of $125 per cow per year by controlling mastitis and save as much as $150,000 by retrofitting old barns with modern equipment. A **North Dakota State**

RESEARCH, EXTENSION AND EDUCATION AT WORK

Extension dairy program produced big economic impacts – $86,000 a year on one dairy. And researchers in **Minnesota** and the **USDA** identified genes in a bacterium that will allow scientists to develop ways to diagnose, prevent and treat Johne's disease, which annually costs dairies more than $200 million.

- **Big little markets**. Extension staff at **South Carolina State** helped small farmers set up a marketing network and four farmers' markets, with another set to open in 2004. The produce sales bring farmers $400 for two days of sales each week – one greenhouse grower made $4,000. **Tennessee State, Arkansas-Pine Bluff** and **Florida A&M** have similar programs for small farmers.

- **Minding the storage.** It's often not enough to grow a crop. Storing it properly can make the difference between profits and losses. Using the varieties and procedures **Georgia** scientists recommend can save the state's Vidalia onion growers more than $18 million in an average year. New storage regimens developed at **Michigan State** save the state's apple growers $1 million annually and add up to two months to potato growers' market. **Minnesota** came up with a new apple cider freezing-and-thawing process that's cheaper and easier than pasteurization and just as effective. **Kentucky** and **Kentucky State** scientists found a way to regulate pawpaws' ripening, making it possible to market high-quality fruit. **Tuskegee University** scientists developed controlled-atmosphere, or CA storage, for muscadine grapes in Alabama, adding three to four weeks to the market for this Deep South favorite. At **Oregon State,** engineers found ways to trim $2 million from CA-storage energy costs. A **Tennessee** Extension team helped cattle producers save $14.5 million per year with improved hay storage. A **Louisiana State** freezer design helped a seafood company increase its capacity and buy more seafood from local fishermen and other wholesalers. And researchers at **Arkansas, Purdue, Kentucky, Tennessee, Kentucky State** and **Montana State** found ways to improve storage and reduce losses in rice, soybeans, wheat, corn and other grains.

- **Stop, thief! S**ometimes what farmers need most is to overcome things that are robbing their profits. **Nebraska** scientists developed WeedSOFT, a weed-management decision-making tool, and has worked with **Purdue, Illinois, Kansas State, Missouri** and **Wisconsin** on local versions. Over the six states, the software provides $13 million in annual cost savings and higher earnings. **North Carolina State** came up with a better way to control leaf spot in peanuts, saving the state's growers as much as $2 million per year in fungicide costs. **Minnesota** scientists save the state's potato growers $1.6 million by finding ways to control green peach aphids, developing a weather monitoring network for accurate fungicide timing and developing hybrids with late blight resistance. **North Dakota State** researchers developed a wheat variety resistant to wheat scab, potentially providing the state's farmers $100 million in improved yields.

Cooperative State Research, Education, and Extension Service
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